

# Summary

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## Introduction

In January 2000, the Washington State Energy Facility Site Evaluation Council (EFSEC) received a revised application from Sumas Energy 2, Inc. (SE2) to construct and operate a 660-megawatt combined-cycle combustion turbine facility (the Sumas Energy 2 Generation Facility) in the City of Sumas, Whatcom County, Washington. As part of its review of the application, EFSEC has prepared this Environmental Impact Statement (EIS) to evaluate the potential impacts associated with construction and operation of the proposed facility.

The scoping phase of the EIS process was completed on October 1, 1999. Based on the comments received and information compiled during the scoping phase, EFSEC determined that the scope of this EIS consists of the elements listed below, along with required content such as a description of the proposed action and alternatives; a discussion of the affected environment; an evaluation of the potential direct, indirect, and cumulative impacts; and an identification of suitable mitigation measures associated with the construction and operation of all components (and connected actions) of the proposed project, including the generating plant, water supply pipeline, wastewater pipeline, natural gas supply pipeline, and electrical transmission lines.

In evaluating potential impacts from construction and operation of these components, the following elements of the natural and built environment are addressed in this EIS:

- Air Quality
- Water Resources/Supply
- Noise
- Wetlands and Vegetation
- Fish and Wildlife
- Visual Resources
- Cultural Resources
- Socioeconomics
- Energy
- Traffic and Transportation
- Communications
- Health and Safety

SE2 indicated in its January 2000 Revised Application for Site Certification (ASC) to EFSEC that it intends to operate the Sumas Energy 2 Generation Facility (S2GF) as a “merchant” plant, that is, selling power produced by the facility wherever there is a market. Either SE2 or power purchasers may obtain transmission rights and move the power to markets. In its application, SE2 proposed to connect the plant to the Canadian

electric grid at BC Hydro's Clayburn Substation in Abbotsford, British Columbia. BC Hydro has stated that they have the capability to accept and wheel the power but have no interest in purchasing it.

Although not included in its January 2000 application, SE2 indicated to EFSEC that an alternative to sending the power into the Canadian electric grid would emerge if Puget Sound Energy (PSE) or another electrical service utility (for example, Bonneville Power Administration) chose in the near future to purchase electricity generated at the S2GF and transmit it into the U.S. Pacific Northwest electric grid. One such possibility, for example, would be to transport the power via the Portal Way Substation at Custer, and the Bellingham Substation. If such an agreement were to be negotiated with PSE or another electrical utility, then two new 115 kilovolt (kV) transmission lines would be constructed at that time in Whatcom County (by the utility) to connect S2GF to the existing transmission systems in Whatcom County. Because EFSEC considers the construction of these two 115 kV transmission lines to be a "connected" action associated with the S2GF project, the impacts associated with construction and operation of these lines are addressed in this EIS. To this end, the routes and pole configuration likely to be chosen for these two 115 kV transmission lines within Whatcom County have been identified by SE2 for evaluation in this EIS.

This EIS evaluates impacts associated with only those portions of the water supply line, wastewater line, and 230 kV electrical transmission line which lie within the U.S. The evaluation of impacts associated with the Canadian portions of these utilities has been accomplished in a separate document entitled *Environmental Assessment Report, Sumas Energy 2, Inc. 230 kV Electric Transmission Line, Sumas, Washington to B.C. Hydro's Clayburn Substation, Abbotsford, B.C.*

## **Purpose and Need for Project**

Prior to the deregulation of the power industry, public authorities needed to undertake detailed energy planning to ensure the availability of adequate power supply, and to avoid construction of unnecessary energy facilities. However, in recent years deregulation has resulted in the development of a competitive wholesale power market in the western United States and Canada. This competitive market encourages the development of efficient power facilities to satisfy increasing power demands and discourages the development of inefficient and unnecessary facilities. In this market, project developers move forward with projects only when convinced of the demand for the power the facilities would produce. Project financing, likewise, depends upon a demonstration of demand and economic benefit.

Demand for power continues to grow in the Pacific Northwest. The *1999 Biennial Energy Report: Challenges and Opportunities for Washington's Energy Future* prepared by the Washington State Department of Community, Trade and Economic Development (CTED) reported growing electric power demands in Washington State. BPA also predicts substantial power deficits in the Pacific Northwest during the next 10 years in its *1998 Pacific Northwest Loads and Resources Study : The White Book*.

The *Washington State Electricity System Study* submitted by CTED in December 1998 to the Washington State Legislature states that:

Washington's electric power system is unique. The state relies heavily on hydropower and federally owned generation and transmission facilities. The majority of retail electricity service is provided by consumer-owner utilities, with only about one-third of retail sales accounted for by investor-owned utilities regulated by the Washington Utilities and Transportation Commission (UTC). (p 1).

The likelihood of supply and capacity shortages in the Northwest in the winter is growing. These shortages may occur under adverse hydropower conditions, due to power demands that exceed the region's combined capability to generate and import power. The prospect of shortfalls is exacerbated by market uncertainty. Utilities may be increasingly reluctant to develop and execute plans to meet future loads reliably when those loads may be served by other power suppliers. (p. 3)

Recent analyses of the Northwest power system loads and resources indicate that in some months, the demand for electricity could exceed the region's current ability to generate and import power to meet regional loads. (p. 2-12)

Without actions to prevent such shortfalls, the likelihood of deficits increases over time. (p. 3-14)

## **Description of Alternatives**

Two alternatives are evaluated in this EIS, the Proposed Action (constructing and operating the S2GF and associated components), and the No Action Alternative (not constructing and operating the S2GF). These alternatives are described below. Alternatives for the plant location, utility routes, gas supply, water supply, and the cooling system were considered by SE2 and eliminated from further study. Two alternative transmission systems have been identified and evaluated.

### **Proposed Action**

The Proposed Action is the construction and operation of a 660-megawatt (MW) combined-cycle combustion turbine electrical generation facility and associated components in Sumas, Whatcom County, Washington (see Figure S-1). The generation plant component of the project would occupy a portion of a 37-acre site within the industrial area of Sumas, just north of the Sumas Cogeneration Company LP No. 1 Generation Facility (SCCLP) 125 MW power generation facility. The facilities, equipment, and features to be installed on the generation plant site include (see Figure S-2):

- Two combustion turbines and their associated electrical generators

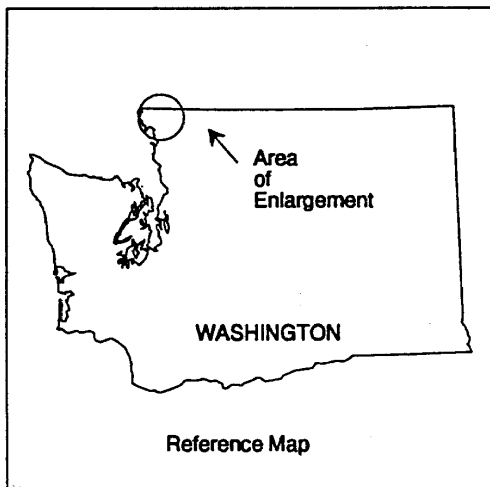
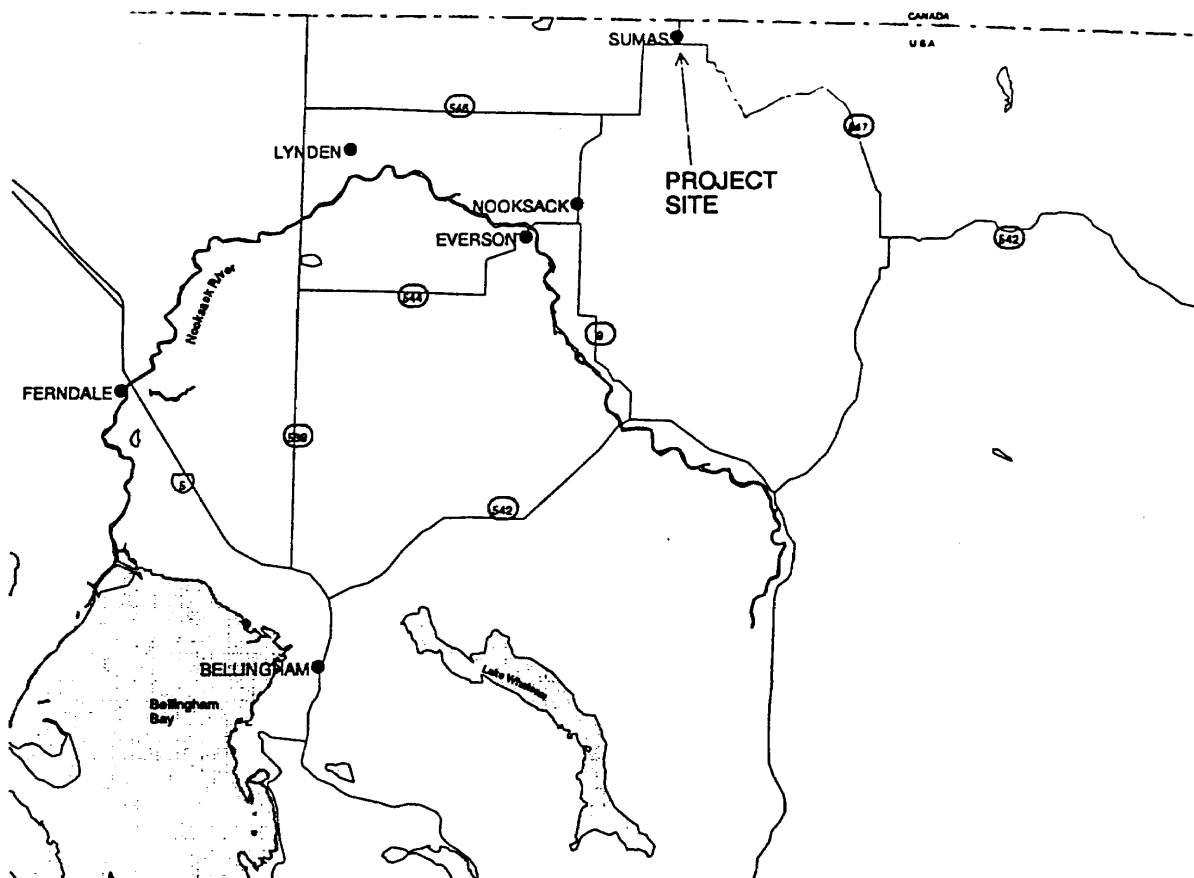
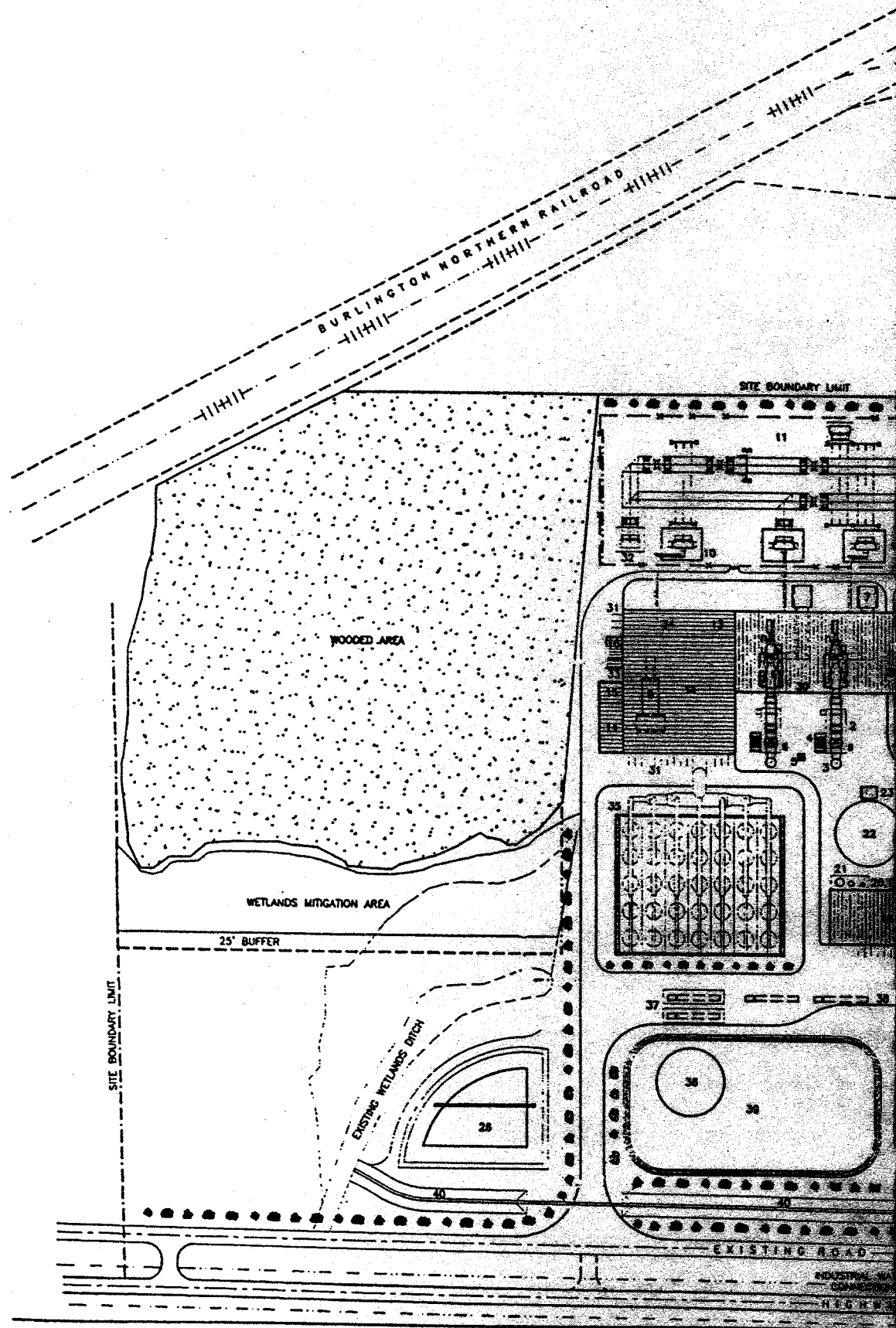
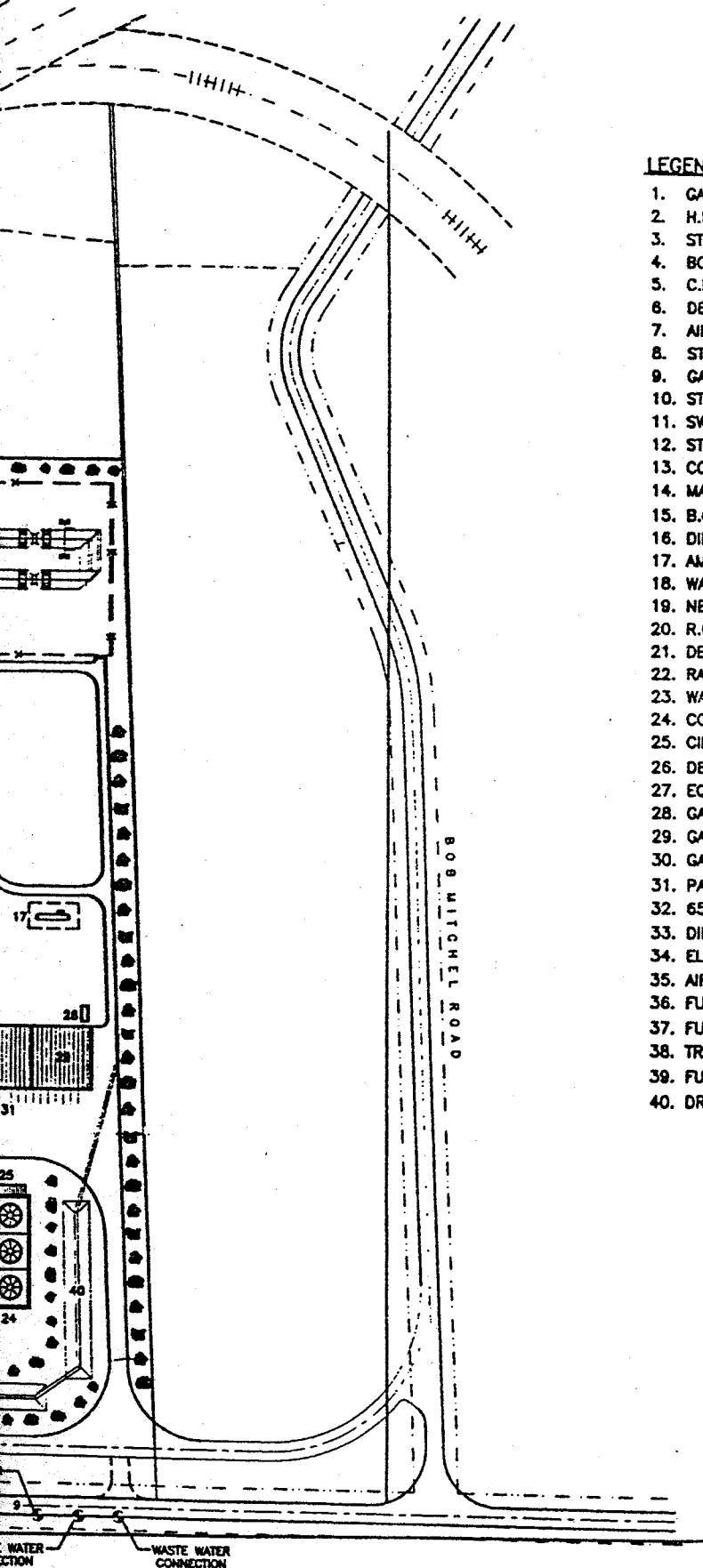


Figure S-1  
General Vicinity Map





#### LEGEND

1. GAS TURBINE/GENERATOR
2. H.R.S.G.
3. STACK
4. BOILER FEEDWATER PUMPS
5. C.E.M.S.
6. DEAERATOR
7. AIR INLET FILTER
8. STEAM TURBINE/GENERATOR
9. GAS TURBINE/GENERATOR G.S.U. TRANSFORMERS
10. STEAM TURBINE/GENERATOR S.U. TRANSFORMER
11. SWITCHYARD
12. STEAM TURBINE/GENERATOR BUILDING
13. CONTROL ROOM
14. MAINTENANCE BUILDING
15. B.O.P. BUILDING
16. DIESEL GENERATOR
17. AMMONIA TANK
18. WATER TREATMENT BUILDING
19. NEUTRALIZATION TANK
20. R.O. TANK
21. DEMIN WATER STORAGE TANK
22. RAW WATER & FIRE WATER STORAGE TANK
23. WATER TANK PUMPS
24. COOLING TOWER
25. CIRC WATER PUMPS
26. DETENTION POND
27. EQUIPMENT SERVICING LAYDOWN AREA
28. GAS CONTROL BUILDING
29. GAS COMPRESSOR BUILDING
30. GAS TURBINE/GENERATOR BUILDING
31. PARKING
32. 6500V TRANSFORMER
33. DIESEL TANK
34. ELECTRICAL ROOM
35. AIR COOLED CONDENSER
36. FUEL OIL STORAGE TANK
37. FUEL OIL UNLOADING STATIONS
38. TRUCK UNLOADING LANE
39. FUEL OIL CONTAINMENT
40. DRAINAGE CHANNEL

Figure S-2  
S2GF Site Plan

Source: Dames & Moore

- Two heat recovery steam generators and their associated 150-foot-high exhaust stacks
- One steam turbine and its associated electrical generator
- One steam condensing system consisting of a dry-cooled condenser, a water-cooled condenser, and a cooling tower
- One substation, consisting of main electrical transformers and their associated switch gear
- One 2.5-million-gallon fuel storage tank, and associated containment dike
- One lined stormwater detention pond sized for the 10-year storm (1.44 acre-feet)
- Access driveways and parking areas
- A 1.9-acre wetland fill
- A 2.06-acre wetland mitigation area
- A 9.4-acre forested wetland preservation/buffer area
- Landscaping, including mature tree plantings along the south, east, and north edge of the generation plant site.

In addition to the above generation plant site facilities, equipment, and features, other components making up the project include the following:

- A natural gas supply pipeline consisting of a 4.5-mile-long, 16-inch-diameter pipeline constructed from the Canadian border to the plant site. The new pipeline would be constructed within the right-of-way (ROW) of an existing natural gas pipeline serving the SCCLP facility to the south. A new ROW would be required for approximately the last one-quarter mile of the line extending from the existing power plant north across State Route 9 to the proposed plant (see Figure S-3a).
- A 230 kV U.S./Canadian electrical transmission line extending north from the site approximately one-half mile to the U.S./Canada border, then following the Canadian Pacific Railroad line for approximately 5.3 miles to BC Hydro's Clayburn station (see Figure S-3a).
- A process/potable water pipeline from the City of Sumas water system to supply a maximum of 849 gallons per minute (gpm) required by the S2GF. Delivery of this water would require that the City upgrade a 1,000-foot portion of an existing City supply line from a six-inch diameter to a ten-inch diameter line, extend the new ten-inch diameter line to the plant site, upgrade certain City water pumps and valves, and install an additional City well at the City's May Road Well Field site (see Figure S-3a).

- A wastewater discharge pipeline from the plant to the City of Sumas wastewater collection system at the plant site boundary, and then through existing lines for treatment in Canada, to accommodate a maximum 256 gpm of combined blowdown and domestic wastewater from the S2GF. Within the City of Sumas, the City would be required to extend the gravity sewer line and force main serving the area, and upgrade Pump Station No. 3 to connect to and accommodate the S2GF wastewater stream (see Figure S-3a).

Although not proposed at this time, two optional 115 kV, 24-mile-long transmission line routes were developed and considered by the applicant to show how this power might be integrated into the local transmission system. One route would extend from the S2GF site to the Portal Way Substation near Custer, while the other route would extend from the S2GF site to the Bellingham Substation and include a crossing of the Nooksack River (see Figures S-3b, S-3c). Both of these lines would be required to handle the output from the S2GF. Development of the 115 kV lines along the majority of both routes would involve replacing existing distribution line poles with taller transmission/distribution combination poles along road and utility ROW (Figure S-4), as well as adding some sections of new 115 kV transmission line ROW.

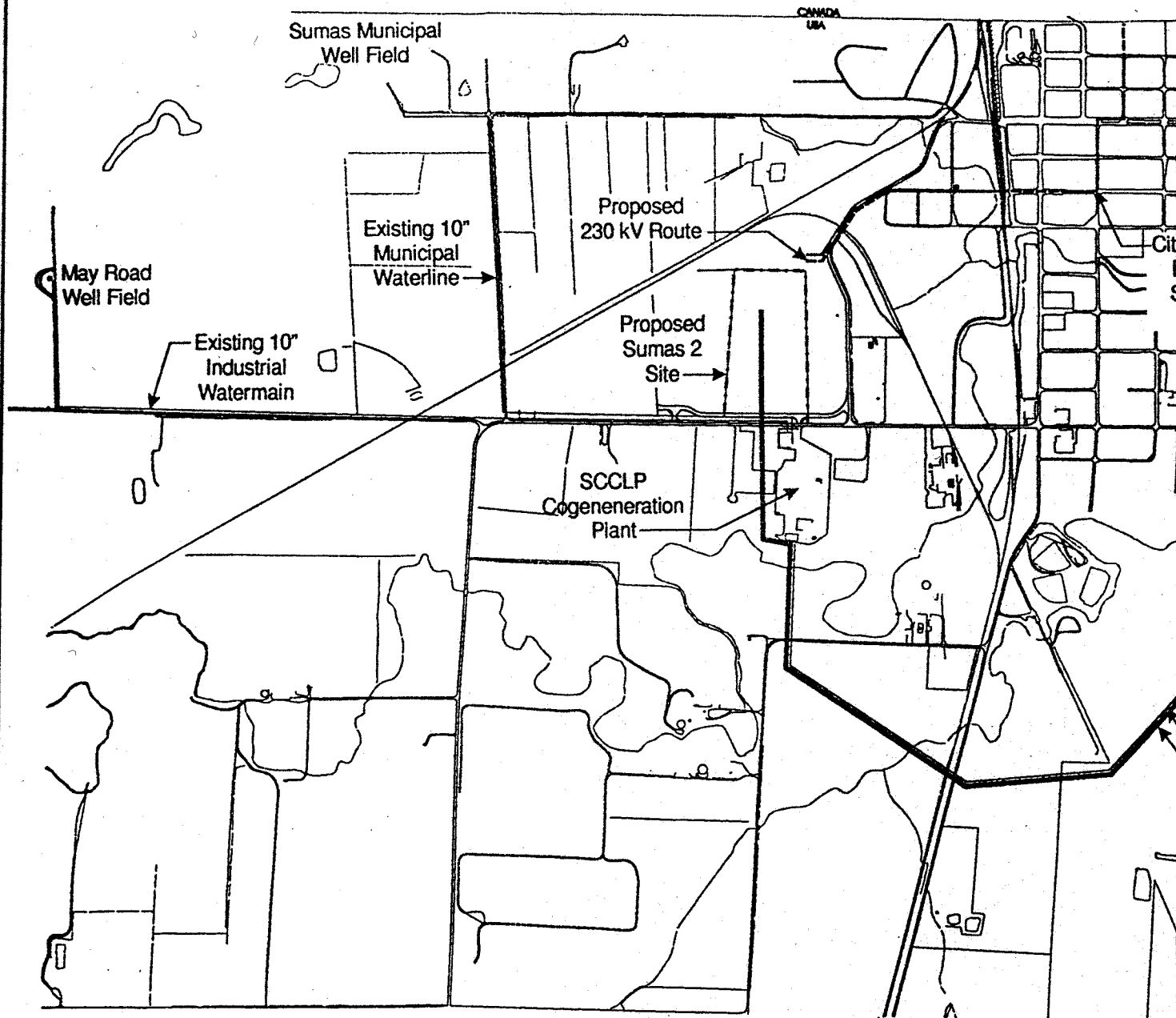
The development of these two 115 kV transmission lines in Whatcom County is considered by EFSEC to be a connected action under SEPA for the following reasons:

- The lines were proposed as alternatives in the public scoping meeting held in Bellingham on September 16, 1999 to discuss the project.
- The applicant and PSE agreed in writing to examine the feasibility of this alternative.
- The applicant has stated in writing that one alternative they were considering was "... to interconnect to ... (BPA) through ... (PSE) by overbuilding several of PSE's transmission and distribution lines to Portal Way and to the BPA substation to Bellingham, Washington. Both of these alternatives are feasible ...".
- BC Hydro has stated that neither they nor Powerex (a Canadian utility) intend to purchase the power, increasing the likelihood that the power might be purchased in, and therefore wheeled in, the U.S.

## **No Action Alternative**

Under the No Action Alternative, the proposed S2GF, natural gas supply pipeline, water supply pipeline, wastewater collection pipeline, and transmission lines would not be built. Power providers would continue to use other or new power sources to meet the needs of their customers.

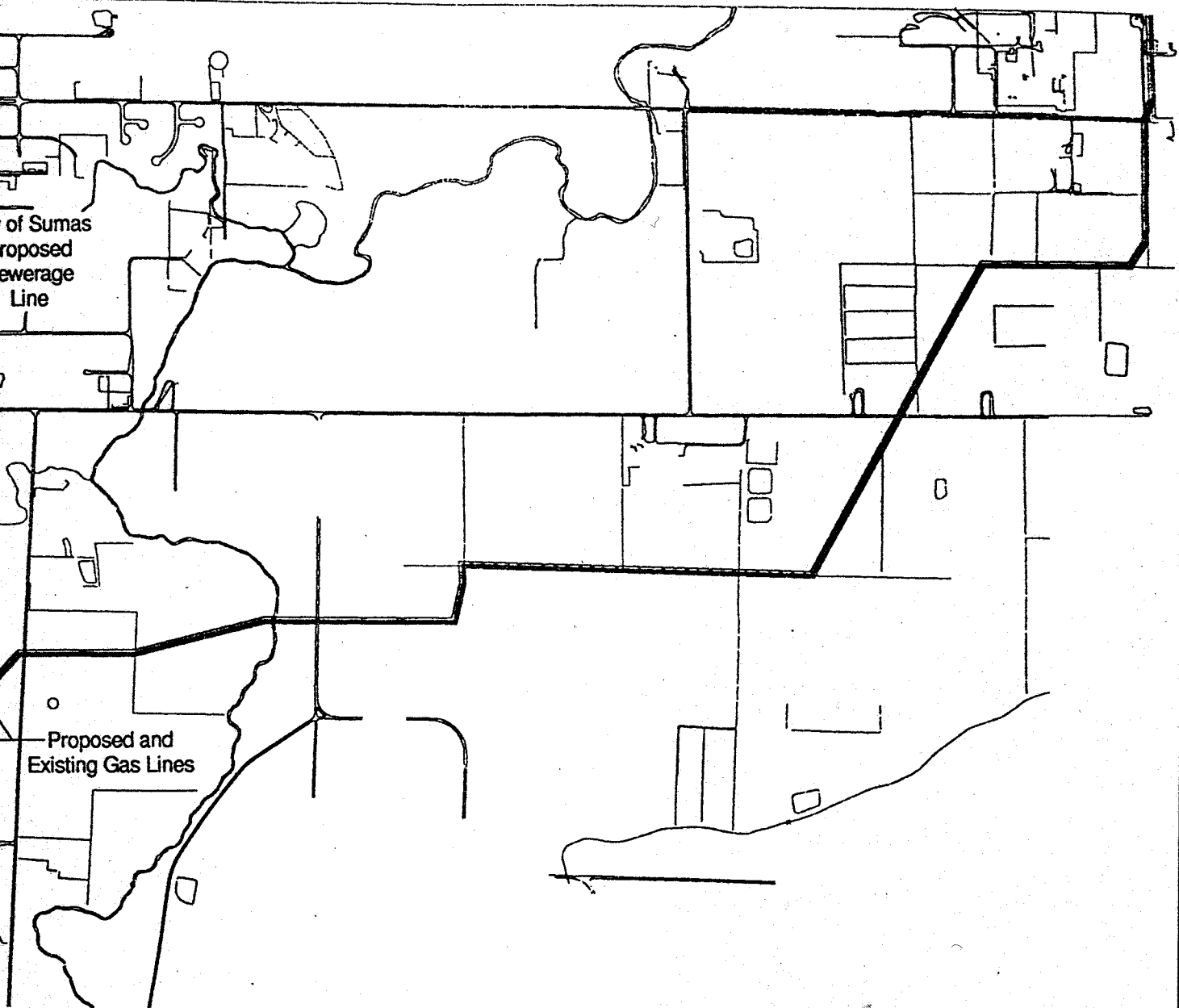




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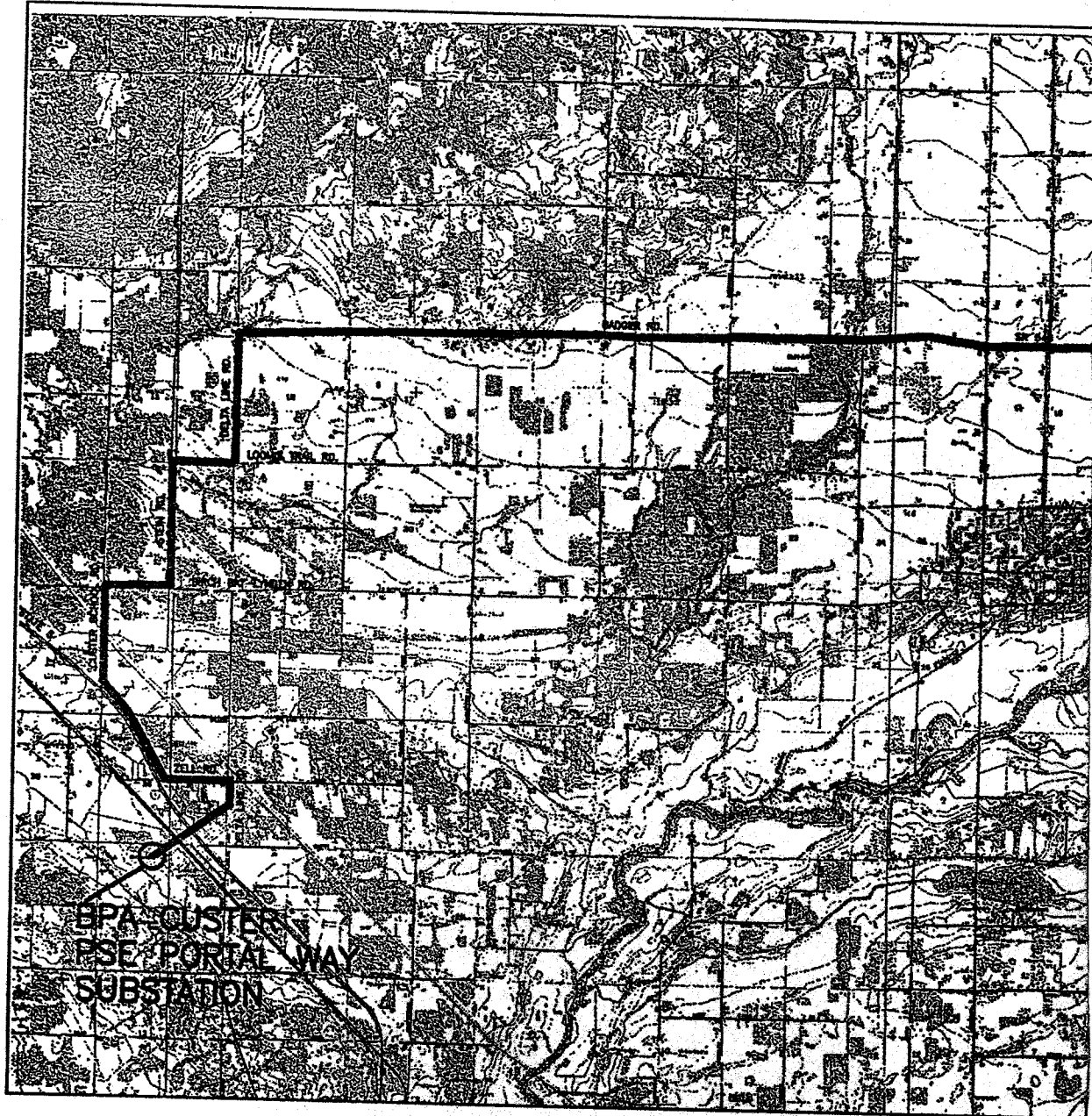


Approximate  
Scale in Feet



**Figure S-3a**  
**Proposed Gas Line; Water**  
**Supply Line; Wastewater Line;**  
**230KV Transmission Line**

Source: Wilson Engineers,  
provided by Dames & Moore



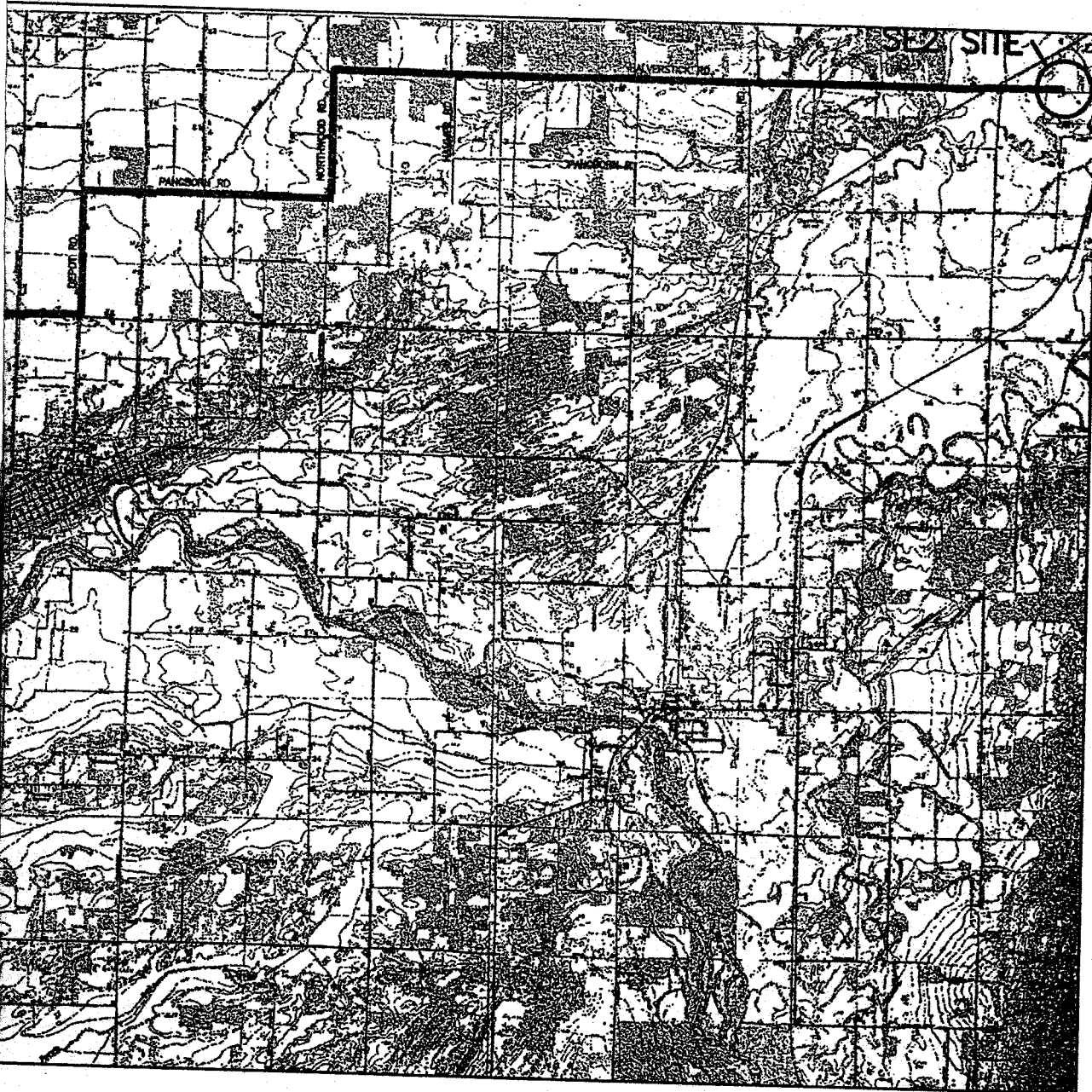
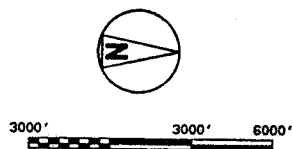
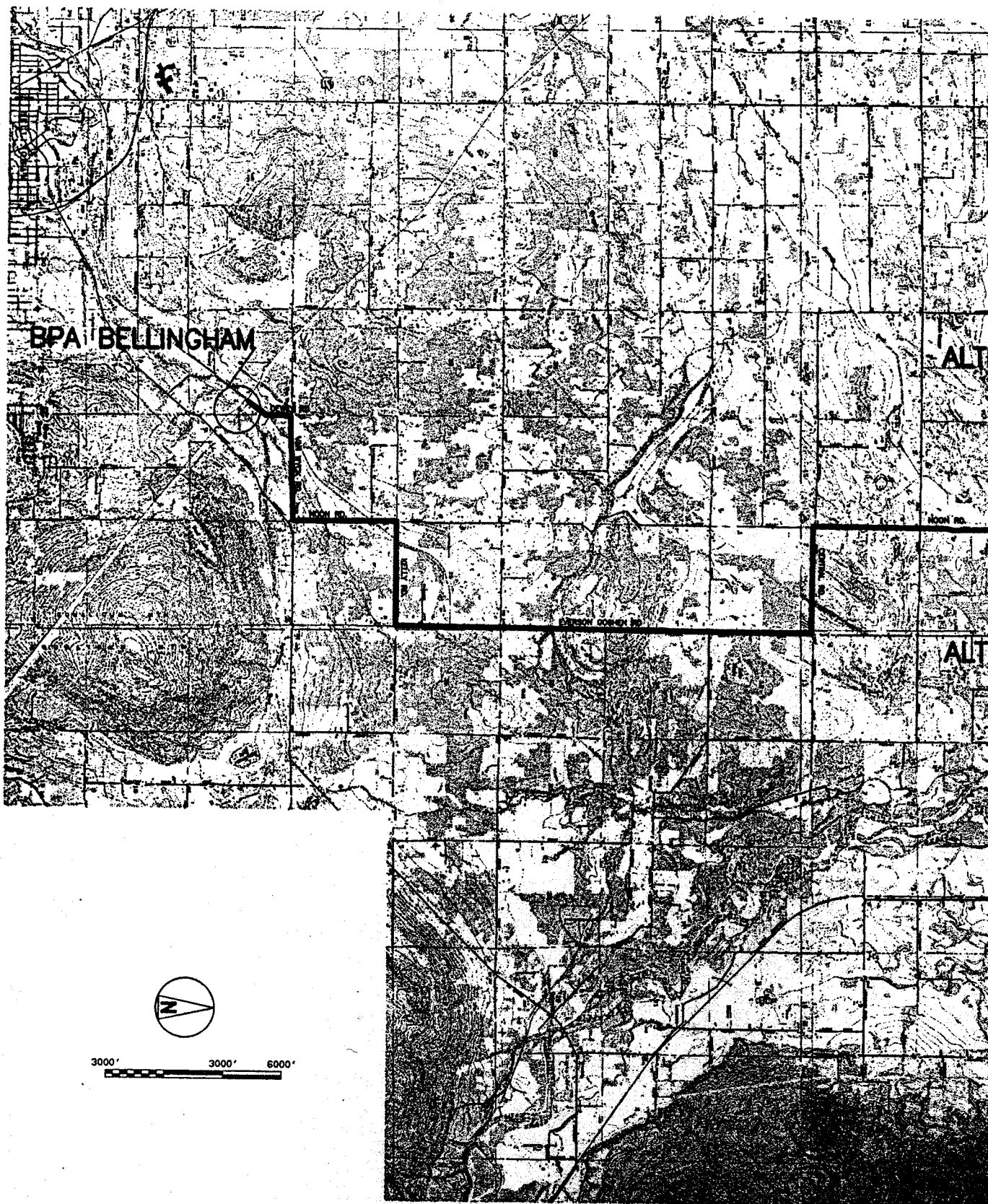


Figure S-3b  
115kV Transmission Line:  
S2GF/Custer

Source: Modified from original  
base map by Black and Veatch;  
provided by Dames & Moore



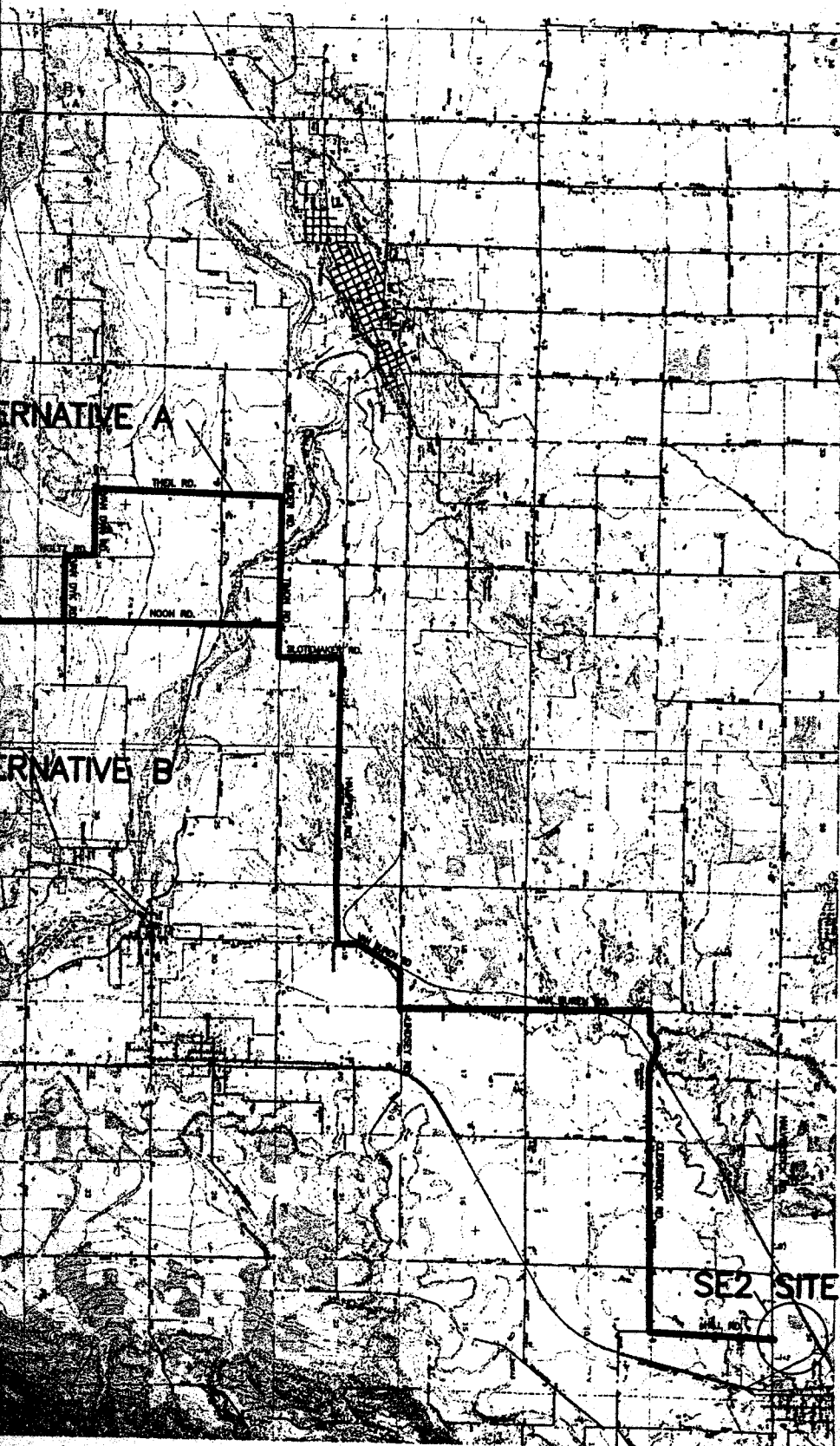


Figure S-3c  
115kV Transmission Line,  
S2GF/Bellingham Route

Source: Map prepared by  
Black & Veatch, provided by  
Dames & Moore

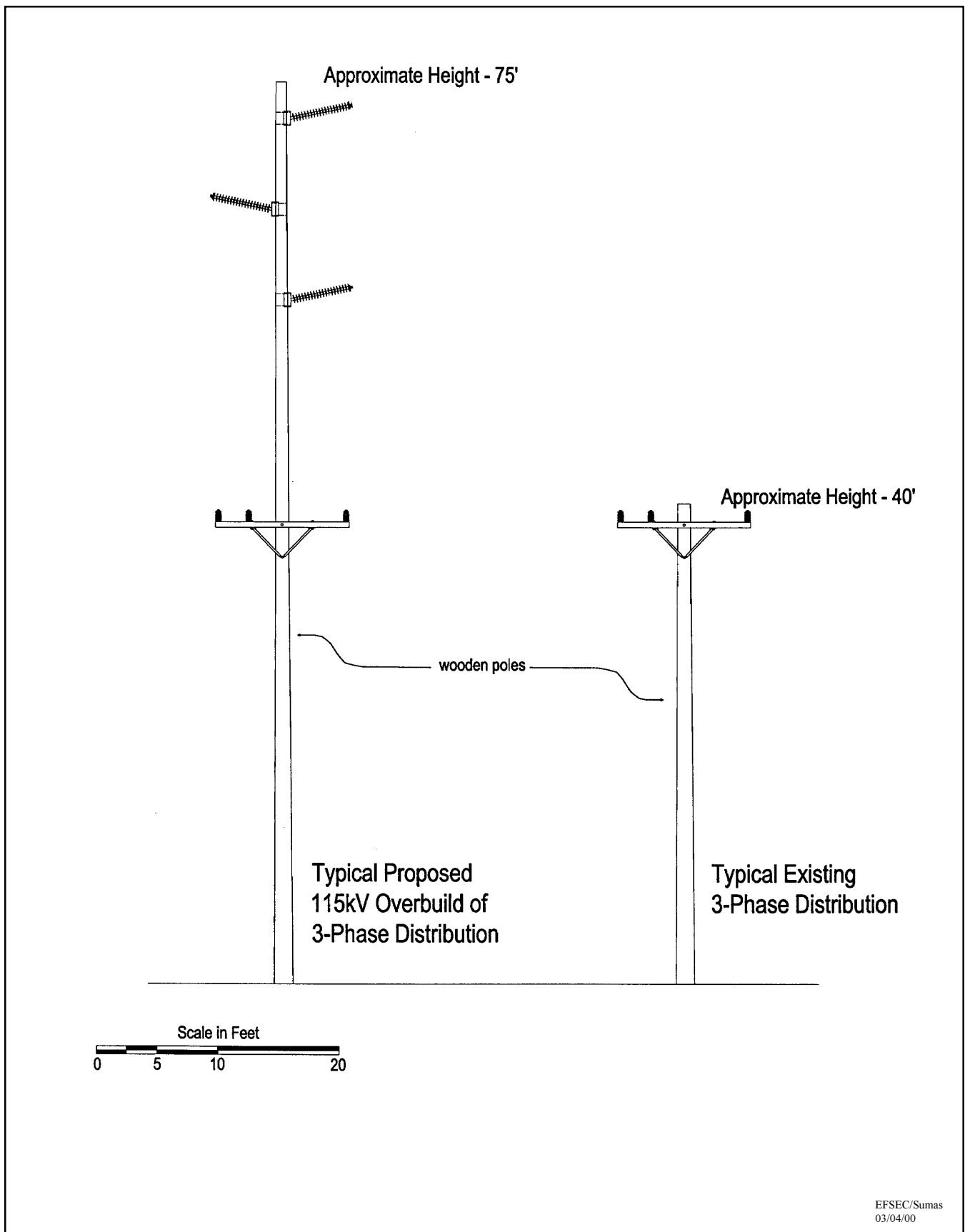


Figure S-4  
Typical Whatcom County Power Poles



## **Summary of Public Involvement/Consultation/Coordination**

### **Scoping**

EFSEC issued a Determination of Significance and Request for Comments on the Scope of the Environmental Impact Statement on August 10, 1999. Comments were solicited and received from local, state, and federal agencies and the public.

Two scoping meetings were held on September 16, 1999 to receive comments on the proposed project. An agency scoping meeting was held in the Training Room of the Bellingham Public Works Department in Bellingham, Washington, and the public scoping meeting was held at the Sumas City Council Chambers in Sumas, Washington. Comment letters were accepted by EFSEC until October 1, 1999. Comments and letters addressed issues concerning air quality, water resources and supply, noise, wetlands and vegetation, fish and wildlife, visual resources, cultural resources, energy, traffic and transportation, communications and potential interference to Sumas communications, health and safety, and socioeconomics.

In addition to the scoping meetings, EFSEC held a public meeting and a land use consistency hearing on SE2's original ASC in the City of Sumas on March 2, 1999.

### **Consultation**

The National Marine Fisheries Service was consulted to identify whether any potential fisheries species listed, or potentially listed, as threatened, endangered or candidate under the Endangered Species Act would occur within the project area. Site-specific information on federal status species and state priority species and habitats was also requested from the United States Fish & Wildlife Service, the Washington Department of Fish and Wildlife, and the Washington Department of Natural Resources Natural Heritage Program.

The Nooksack Tribe has been informed about the project by SE2. The Tribe has indicated to SE2 that it has no concerns about the project.

Both SE2 and EFSEC have initiated discussions with the British Columbia Ministry of Environment, Lands and Parks (MELP) concerning water and air quality issues, and the B.C. Ministry was invited to the September 16, 1999 agency scoping meeting at which time they presented their concerns regarding potential air quality impacts.

The federal land managers, National Park Service and the U.S. Forest Service, are being consulted as part of the preparation and review of the Prevention of Significant Deterioration (PSD) permit for the plant, especially in regard to the potential degradation of visibility to Class I areas.



## Role of EFSEC

EFSEC is the single non-federal authority for licensing major energy facilities in the State of Washington. If a project is approved, EFSEC specifies the conditions of construction and operation, issues a Site Certification Agreement in lieu of any other individual state or local agency authority, and manages the environmental and safety oversight program of project operations. As part of EFSEC's permitting process, SE2 submitted an application for Site Certification in January 1999, and an amended application on January 10, 2000. EFSEC is the sole state/local agency authorized to permit the project. Federal agency approvals are also needed.

For informational purposes, Table S-1 lists the major state and local permit requirements preempted by EFSEC, as well as federal requirements.

**Table S-1. Overview of Permit, Approval, and Consultation Requirements for the S2GF Project**

<b>Agency</b>	<b>Permit/Authority</b>
<b>Federal Government</b>	
Advisory Council for Historic Preservation	Consultation under Section 106/National Historic Preservation Act
U.S. Army Corps of Engineers (ACOE)	Cooperating Agency
	Section 404(b)(1) Individual Permit/Clean Water Act
	Section 10 Permit/Rivers and Harbors Act of 1899
	Department of Army Dredge and Fill Permit(s)
Department of Energy, Office of Fossil Energy (DOE/OFE)	National Environmental Policy Act (NEPA) Lead Agency
	Historic Preservation/Landmark Review
	Presidential Permit for Power Transmission Line Border Crossing
	Power Export Authorization
	Self Certification re: Alternative Fuel Capability
	Natural Gas Import Authorization
U.S. Department of Transportation, Office of Pipeline Safety	Gas Pipeline Safety Approval
Department of Energy, Federal Energy Regulatory Commission (FERC)	Presidential Permit for Gas Pipeline Border Crossing Facility
U.S. Section, International Boundary Commission	Construction Authorization for International Boundary

Agency	Permit/Authority
<b>State Government (EFSEC has single permit authority over all state and local permits)</b>	
State of Washington, Energy Facilities Site Evaluation Council (EFSEC)	Lead Agency and Site Certification Agreement/ EFSEC's responsibilities derive from the Revised Code of Washington (RCW) 80.50, and include siting large natural gas and oil pipelines, electric power plants above 250 megawatts and their dedicated transmission lines, new oil refineries or large expansions of existing facilities, and underground natural gas storage fields. EFSEC has been delegated authority by the U.S. Environmental Protection Agency to issue permits under the Federal Water Pollution Control Act and the Federal Clean Air Act for facilities under its jurisdiction. No other state or local permits apply.
	Section 309/ Clean Air Act
	National Pollutant Discharge Elimination System (NPDES) Permits
Northwest Air Pollution Central Authority (NWAPCA)	Notice of Construction Approval (NOC)
	Prevention of Significant Deterioration (PSD) Permit
	Air Operating Permit
	Acid Rain Permit
Washington Department of Fish & Wildlife (WDFW)	Hydraulic Project Approval (HPA)
Department of Ecology, Shorelands and Wetlands Program	Water Quality Certification
	Coastal Zone Management Program Consistency Certification
Department of Ecology, Water Quality Program	NPDES and State Waste Discharge Baseline General Permit for Stormwater Discharge Associated with Construction and Industrial Activities.
	Industrial Waste Discharge Permit for wastewater discharges to Sumas sewer system
Department of Transportation	Franchise/Encroachment Permit (Boring gas pipeline)
Washington Utilities and Transportation Commission	Natural Gas Pipeline Construction Approval
Department of Labor & Industries	Electrical Construction Permit
<b>Local – Whatcom County (Gas Pipeline Only)</b>	
Whatcom County Engineer	Accommodation of Utilities on Right-of-Way and Utility Construction Approval (Right of Way/Easement)
	Road Approach Construction Permit
Whatcom County Transportation Services	Encroachment Permit
Whatcom County Building Official	Building Permit
Whatcom County Planning Department	Critical Areas Ordinance

<b>Agency</b>	<b>Permit/Authority</b>
<b>Local – City of Sumas</b>	
City of Sumas	Comprehensive Land Use Plan and Zoning Compliance
	Compliance with City of Sumas Wetland Protection Ordinance
	Shoreline Substantial Development Permit
	Building Permits
	Certificate of Water and Sewer Availability
City of Sumas Fire Marshall	Fire Marshal Permit
Sumas City Utilities Superintendent	Flood Risk Zone Permit and/or Flood Hazard Development Permit
City of Sumas Police Department	Compliance with Noise Regulations

## **Significant Areas of Controversy or Uncertainty**

There are three areas of controversy associated with this project: water supply, transmission lines, and air quality. They are discussed below.

### **Water Supply**

Although initial indications were that the Town of Abbotsford was going to sell water from wells that were too high in nitrate for potable use, existing laws in British Columbia prohibited that sale. This decision lost revenue for the city and required SE2 to convert to a less efficient and more costly dry cooling system. This solved the Canadian water export issue, but increased the amount of water required from the City of Sumas.

### **Transmission Lines**

The transmission line included in the application connects to a Canadian substation where the power would be wheeled by BC Hydro. However, BC Hydro has stated that they have no interest in purchasing any of the power. No Canadian interests have publicly expressed a desire for the power, and at least one Washington utility, PSE, has discussed possible purchase of some or all of the power or use of their power line ROW to wheel it. PSE has not announced that it is interested in purchasing the power and they are not proposing the two lines. Based on the available data, it appears more likely that the power would be consumed in the U.S. than in Canada, and that this alternative might require electrical transmission system upgrades in the U.S. Although this EIS has not examined the capacity of the U.S./Canadian intertie, it does examine the potential impacts of two optional 115 kV lines that could possibly carry the power, depending upon the purchaser. If the two 115 kV lines are proposed to be built, Whatcom County

would be the likely lead permitting agency. The potential environmental impacts of these optional 115 kV transmission lines are addressed in this EIS. The county could, therefore, use this EIS as the basis for its SEPA decision or could supplement this document in any way necessary.

## **Air Quality**

Various Canadian organizations were concerned about air quality. The U.S. Forest Service and National Park Service were concerned about visibility based on the very conservative screening model. More sophisticated modeling was done, and visibility impacts are discussed herein. The only air quality issue remaining appears to be due to the use of oil during brief curtailment periods.

### **Summary of Potential Impacts, Mitigation Measures, and Significant Unavoidable Adverse Impacts**

Table S-2 summarizes potential impacts and mitigation measures for the Proposed Action.

Three types of mitigation measures to avoid or reduce adverse environmental impacts resulting from the Proposed Action are presented in the EIS: (1) measures inherent in project design; (2) best management practices (BMPs) incorporated into construction and operation; and (3) additional mitigation measures recommended to the applicant. No mitigation measures are required or presented for the No Action Alternative.

With the incorporation of the three types of mitigation measures described above, this project is expected to have no significant adverse impacts on the environment. The No Action Alternative would also have no significant adverse impacts on the environment.

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<b>Air Quality</b>	
<p><i>Construction</i></p> <ul style="list-style-type: none"> <li>▪ Fugitive dust generated by excavation and minor combustion emissions from vehicles and equipment would occur during construction of the gas pipeline, water and wastewater lines, and electrical transmission lines</li> <li>▪ Dust would be generated by excavation and grading activities for the generation plant. Minor amounts of combustion emissions from equipment and vehicles would occur.</li> <li>▪ Odors could be released from oil-based paint or asphalt.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None required for emissions.</li> <li>▪ Dust from access roads and other fugitive dust sources would be controlled by applying gravel or paving access roads and spraying water.</li> <li>▪ None required.</li> </ul>
<p><i>Operation</i></p> <ul style="list-style-type: none"> <li>▪ Emissions of air pollutants such as nitrogen oxides, carbon monoxide, volatile organic compounds, particulate matter, sulfur dioxide would occur.</li> <li>▪ Emissions of toxic pollutants such as ammonia, benzene, formaldehyde, lead would occur.</li> <li>▪ Decreased visibility in scenic areas could occur.</li> <li>▪ Deposition of sulfur and nitrogen compounds could occur.</li> <li>▪ Local fogging and icing could result from cooling tower plumes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of Best Available Control Technology (BACT) to control levels of pollutant emissions. Under BACT, the “most stringent control technology” must be applied to the control of each pollutant, unless it can be demonstrated to EPA that less stringent measures will provide required control.</li> <li>▪ None proposed.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

<b>Potential Impact</b>	<b>Mitigation</b>
<ul style="list-style-type: none"> <li>▪ The generation facility would contribute to emissions of “greenhouse gases” such as carbon dioxide.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The applicant proposes to offset as much carbon as possible through the voluntary investment of \$100,000 per year in greenhouse gas research, offsets, or management projects for ten years.</li> </ul>
<b>Water Resources</b>	
<p><i>Construction</i></p> <ul style="list-style-type: none"> <li>▪ Degraded water quality could result from erosion after native soils are stripped to allow placement of surcharge piles and permanent fill material.</li> <li>▪ Potential impacts to groundwater quality could occur if contaminants were released into the surface water and/or were able to infiltrate to the groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction-phase erosion and sedimentation control BMPs from <i>the Stormwater Management Manual for the Puget Sound</i> (Ecology 1992, or as revised) will be implemented (as required by law). These measures will include chemical source control, silt fencing, cobbled construction entrances, street sweeping, straw bale check dams, rock cobble check dams (for velocity dissipation), and a siltation pond (the permanent detention/wet pond).</li> <li>▪ Erosion control structures or devices will be regularly maintained and inspected to ensure compliance with state water quality standards.</li> <li>▪ A Storm Water Pollution Prevention Plan will be developed to address construction activities and handling of hazardous substances associated with the construction of the power plant, the gas, water, and wastewater pipelines, and the transmission lines. The plan will address structural controls (silt fences, straw bale barriers, etc.), vegetation practices (temporary and permanent cover practices), and site management of solid, liquid, and hazardous materials and wastes.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
	<ul style="list-style-type: none"> <li>▪ The natural gas pipeline crossings of all wetlands and Sumas, Johnson, and Bone Creeks would be accomplished by using horizontal directional drilling (HDD) to install the gas pipeline under the water bodies. If a release of drilling mud to a stream were to occur through fracture of overlying sediment during the drilling process, the operator will immediately cease operations, notify EFSEC and the Department of Ecology, and take necessary steps to clean up the release.</li> <li>▪ Additional measures that could be implemented to protect surface water resources include use of drilling mud that contains no oil or toxic substances, and monitoring of drilling mud pressures and recovery during drilling to prevent hydrofracturing of the soil and release of drilling fluids to the stream or wetland.</li> </ul>
<p><i>Operation</i></p> <ul style="list-style-type: none"> <li>▪ Degraded surface and groundwater could result from runoff at the generation plant site.</li> <li>▪ Surface water quality could be affected by an accidental chemical spill (e.g., gasoline), during rainfall, in an area that drains to the lined detention/wet pond.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permanent BMPs will be employed to treat runoff from the site to comply with the Stormwater Management Manual for Puget Sound. These BMPs include chemical source control, stabilized landscaped areas, stabilized paved areas, catch basins and underground storm sewers, a combination detention pond/wet pond, and a grassy discharge channel. Runoff would be treated in an oil-water separator, pond, and/or bioswales before being discharged through a pipe to the unnamed tributary of Sumas Creek east of the site.</li> <li>▪ Normal hazardous material cleanup techniques will be used to remove any spilled chemical product from the lined detention pond and other areas where it had accumulated.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

<b>Potential Impact</b>	<b>Mitigation</b>
<ul style="list-style-type: none"> <li>▪ Site operations could adversely affect the quality of groundwater if contaminants were accidentally released onsite and allowed to infiltrate to the aquifer.</li>   <li>▪ Water for operation would be purchased from the City of Sumas and supplied from the City's existing well fields. One irrigation well and five domestic wells could experience a drawdown in their operating water levels, especially during the dry months. Although the water level in these wells would rebound when the water supply wells were shut off, the City's wells probably would not be shut off often or for long periods because of the increased demands on the water supply system. Any new wells and pumps installed in this zone would need to be designed to accommodate the locally depressed water level (e.g., somewhat deeper wells and greater pumping requirements).</li>   <li>▪ Potential long-term effects on baseflow of local streams due to lowering the level of the Sumas aquifer cannot be quantified due to insufficient data.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chemical releases resulting from accidental spills will be contained by the impervious surfaces and the stormwater detention system, and cleanup of any releases will be accomplished so as to minimize the potential for migration to groundwater. Accidental releases during fueling will be contained in a paved bermed area, and the fuel tank will be enclosed in a dike and spill retention pond of sufficient size to accommodate one and one-half times the full tank volume.</li>   <li>▪ None proposed.</li>   <li>▪ The applicant would construct a 1,000,000-gallon storage tank to provide for its peak water demand. The storage tank would be filled during off-peak times (for example, at midnight and the early morning hours).</li>   <li>▪ None proposed.</li> </ul>



**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

<b>Potential Impact</b>	<b>Mitigation</b>
<ul style="list-style-type: none"> <li>▪ There is a potential for, but no clear indication, that increased groundwater extraction may result in increased nitrate levels in the City wells or local streams. The increase in nitrates in well water released to surface water resulting from the cumulative effect of all groundwater extraction is not expected to cause a significant change in the nutrient dynamics of Johnson Creek due to the prevalence of agricultural sources of nitrate. If groundwater quality deteriorates as a result of pumping, any impact resulting from this project would be incremental and might occur over time with or without this project as the City finds other uses for its groundwater resource.</li> <li>▪ Raising the generation plant site grade has a potential to minimally raise the 100-year floodplain elevation on adjacent properties. If completely built out, the industrial area may increase flood levels up to one foot. The proposed S2GF would create an incremental increase.</li> <li>▪ The proposed project could be an impediment to flood flow, redirecting flood flow and increasing flood water velocity toward a nearby building to the southeast.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None proposed.</li> <li>▪ None proposed.</li> <li>▪ The proposed site design incorporates a diversion channel around the south and southeast portion of the facility. A combination of 42-inch culverts and large open ditches would be provided to convey the water around the site and to prevent the concentration of floodwaters along ditches. The site would be graded so that in the event that any of the large culverts within the project were blocked, the floodwater would remain in an “overflow” alignment that would keep flood flows within the project boundaries and avoid damage to adjoining property.</li> </ul>
<b>Noise</b>	
<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>▪ Temporary noise from construction activities would occur during daytime hours.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None required.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<p><i>Operation</i></p> <ul style="list-style-type: none"> <li>▪ Noise would be generated at the plant site within regulatory standards and federal agency guidelines. Under stable atmospheric conditions, noise levels generated at the plant would be equal to or slightly lower than the City's 50 dBA night limit for industrial noise sources affecting residential receivers, and at least 10 dBA lower than the daytime noise limit.</li> <li>▪ The highest sound levels from the plant would be along the eastern property line, where the maximum predicted sound level just meets the 70 dBA limit under stable atmospheric conditions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The turbines will be placed within an enclosed building to reduce noise.</li> <li>▪ Noise levels will be measured at startup of the facility, and equipment suppliers will be required to retrofit equipment if necessary to meet the performance specifications. Although the noise modeling does not indicate it will be necessary, additional noise walls and other forms of mitigation will be employed to meet standards based on the monitored noise levels at startup.</li> <li>▪ The applicant plans to purchase the adjacent property east of the site from the Port of Bellingham. If this is accomplished, the plant site would be increased by the width of that property, and estimated sound levels at the property line would range from 60 to 62 dBA and would meet the standard.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<b>Vegetation and Wetlands</b>	
<p><i>Construction</i></p> <ul style="list-style-type: none"> <li>▪ A total 27.5 acres of agricultural land at the plant site would be permanently lost.</li> <li>▪ Wetland impacts include 1.9 acres of permanent fill (including farmed wetland pasture and a wetland ditch).</li> <li>▪ Construction of the generation plant would result in a reduction of the onsite wetlands' ability to retain stormwater and associated pollutants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None proposed.</li> <li>▪ An 11.87-acre mitigation area is proposed by the applicant to compensate for the emergent wetlands to be lost upon site construction. Compensatory mitigation would consist of preserving an 8.8-acre PFO/PSS wetland area, preserving an approximately 0.64-acre buffer fringe dominated by herbaceous plants, and creating and enhancing 2.06 acres of wetlands and 0.37 acre of wetland buffer. The proposed 2.06-acre wetland enhancement (0.56 acre) and creation area (1.5 acres) is located along the south edge of the 8.8-acre palustrine shrub/forested (PSS/PFO) wetland located immediately west of the plant site. The combined mitigation ratio (creation/enhancement area to impact area) is 1.08:1. This ratio is considered appropriate due to the disturbed nature of the wetland to be affected and the large (8.8-acre), PSS/PFO wetland area to be preserved. The entire 11.87 mitigation area of preserved new or enhanced wetlands and buffer will be dedicated to the City of Sumas as permanent open space or placed in a conservation easement.</li> <li>▪ A ten-year monitoring period would be implemented to ensure plant establishment and that wetland hydrology is functioning appropriately.</li> <li>▪ Any existing drain tiles located south of the adjacent PSS/PFO wetland would be removed as the site is developed for mitigation to increase the potential for groundwater to continue to influence the site's wetland hydrology.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<ul style="list-style-type: none"> <li>Approximately 5.0 acres of low quality herbaceous vegetation communities (fallow agricultural fields, road shoulders, existing utility corridors) would be temporarily disturbed to dig trenches for water, wastewater, and natural gas lines or holes for transmission line poles. Wetland impacts during utility installation include 0.6 acres of temporary disturbance to install the gas pipeline, and 0.1 acre associated with installation of the water and wastewater lines; wetland buffers would also be impacted in a few areas.</li> </ul>	<ul style="list-style-type: none"> <li>Hydrologic functions of the wetland ditch on the plant site would be maintained by routing the flow through the project site in a constructed swale and associated culverts.</li> <li>Pre-construction wetland hydrology will be maintained with the installation of impermeable plugs at the edges of the wetlands, and impervious material in the pipeline trench below wetlands.</li> <li>The proposed wetland mitigation area would offset lost or impaired hydrologic and wildlife functions due to site construction. The created wetland would provide additional stormwater storage capacity and sediment trapping, although the mitigation area is not intended for use as a stormwater facility. Construction of seasonally ponded areas in the created wetland is intended to produce suitable amphibian habitat and enhance overall biological diversity.</li> <li>The gas pipeline will be drilled beneath all streams (Sumas River, Bone Creek, and Johnson Creek) and wetlands to reduce the potential for impacts to the waterways. The drill pits will be placed outside of the wetland, buffer, or riparian areas.</li> <li>Disturbed emergent wetland areas will be reseeded or hydroseeded with a native grass mix.</li> <li>Affected wetland areas will be graded to pre-project contours.</li> <li>No staging of equipment or stockpiled soils for the gas pipeline are proposed within 50 feet of the wetlands, except for temporarily side-cast trench material in the approaches to the drilled sections.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<ul style="list-style-type: none"> <li>▪ Two of the poles for the 230 kV electric transmission line may be located at the edge of Category III PSS and PEM wetlands, resulting in less than 0.1 acre impact each; however, another unrelated project may impact these areas before the transmission line is constructed.</li> <li>▪ Depending on tree location relative to the electrical transmission lines, some trees would be cut down, and some trees would be trimmed to a height of 25 feet.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No trees will be removed for the installation of the new gas pipeline.</li> <li>▪ Silt fencing will be used to protect wetlands outside the construction corridor from sedimentation.</li> <li>▪ Impermeable material will be installed at the edge of the wetland where appropriate, and in the pipeline trench, preventing wetland drainage.</li> <li>▪ The top 12 inches of topsoil removed for utility and gas pipeline construction would be salvaged and then replaced after construction is complete.</li> <li>▪ Construction mats will be used in saturated wetland areas to minimize soil rutting and plant disturbance.</li> <li>▪ Wetland buffer impacts would be compensated by hydroseeding any disturbed area in the pasture land with similar grass species.</li> <li>▪ Trimmed material and tree trunks will be left on the ground in naturally vegetated areas for habitat features. Cut debris would be removed from streams to prevent obstructing flow through culverts. Clearing and trimming in areas that are not currently maintained would be minimized by strategic placement of utility and transmission lines.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<ul style="list-style-type: none"> <li>Where the 115 kV S2GF/Bellingham route crosses the Nooksack River, the Noon Road alternative would require trimming a few mature black cottonwood trees, while the Pollinder/Timon Road crossing would require clearing several mature black cottonwoods and trimming cottonwoods and willows on the river banks. The S2GF/Custer route contains a few areas of forest and isolated mature trees that would require limited clearing or trimming; DNR forest on Zell Road would also have to be cleared an additional 20 feet along approximately 1,000 feet of the route.</li> </ul>	<ul style="list-style-type: none"> <li>Tree trimming at the Nooksack crossing will be minimized and subject to approval by the lead permitting agency. Compensation for the clearing and trimming that occur in wetlands and wetland buffers would be in the form of wetland and riparian forest enhancement. Enhancement would be located in the riparian area of the Nooksack River in the vicinity of the two locations being considered for the transmission line crossing. Non-native would be removed from these areas by hand pulling and shoveling. Native vegetation would be planted in these areas as appropriate.</li> </ul>
<b>Fish and Wildlife</b>	
<p><i>Construction – Wildlife</i></p> <ul style="list-style-type: none"> <li>Potential destruction of active bird nests or other breeding wildlife.</li> <li>Wildlife habitat associated with the S2GF site wetland would be lost.</li> <li>Temporary loss of common habitat types along natural gas pipeline (40 acres) and water/wastewater pipelines (1 acre).</li> <li>Disturbance along transmission lines to install poles.</li> <li>Additional width for pruning along existing transmission lines (two routes).</li> <li>For the 115 kV S2GF/Bellingham route, mature cottonwoods would be removed along the Nooksack River (less than 5 for preferred route, over 10 for the alternative crossing). Trees are used by eagles and other wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>Clearing during active breeding season (March 15 through July 15 of any given year) should be prohibited.</li> <li>Habitat functions will be replaced through wetland mitigation.</li> <li>None required.</li> <li>No specific measures required, but many BMPs serve to further reduce impacts.</li> <li>Pruned material should be left on the ground in naturally vegetated areas to contribute to woody debris and organic materials.</li> <li>A bald eagle nest site management plan should be prepared in cooperation with the WDFW for nest located about 600 feet from the proposed crossing. Compensate for loss by planting cottonwoods or, for eagles, creating artificial perches.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<ul style="list-style-type: none"> <li>Disturbance of nesting or wintering bald eagles could occur during construction of the 115 kV S2GF/Bellingham transmission line.</li> </ul>	<ul style="list-style-type: none"> <li>Construction from about August 1 through November 15 of any given year will avoid disturbance (dates could be adjusted, if necessary and if approved by WDFW).</li> </ul>
<p><b>Construction – Fish</b></p> <ul style="list-style-type: none"> <li>Removal of some trees would occur in the riparian buffer at transmission line stream crossings (A-S6, A-S15, A-S16, A-S31, C-S1).</li> <li>There is potential for a reduction in water quality and thus fish habitat from construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>A compensation plan should be developed for lost habitat function through riparian enhancement including removal of non-native vegetation (e.g. Japanese knotweed, Himalayan blackberry) and replacement with native vegetation (e.g. Sitka willow, Scouler’s willow, Pacific willow and cottonwood).</li> <li>See mitigation measures for water resources.</li> </ul>
<p><b>Operation – Wildlife</b></p> <ul style="list-style-type: none"> <li>Destruction of bird nests and/or eggs could occur during clearing to maintain transmission line rights-of-way.</li> <li>There is potential for avian collisions with transmission lines.</li> <li>There is potential for electrocution of hawks and eagles perching on transmission poles.</li> </ul>	<ul style="list-style-type: none"> <li>Clearing during active breeding season (March 15 through July 15 of any given year) should be prohibited.</li> <li>Measures recommended by the Avian Power Line Interaction Committee, including placement of visual markers over rivers and other known flyways should be implemented.</li> <li>Adequate spacing of conductors and other live-wire features (per O’Neil, 1988) should be provided.</li> </ul>
<p><b>Operation - Fish</b></p> <ul style="list-style-type: none"> <li>Water quality impacts could occur from storm water runoff at S2GF site.</li> </ul>	<ul style="list-style-type: none"> <li>See mitigation measures for water resources.</li> </ul>

### Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project

Potential Impact	Mitigation
<b>Visual Resources</b>	
<p><i>Construction/Operation</i></p> <ul style="list-style-type: none"> <li>Visual impacts are anticipated at residences along State Route 9, Kneuman Road, and from points on Moe's Hill and other areas and roadways surrounding the generation plant.</li> <li>During certain seasons or weather conditions, emissions will be visible from the cooling towers.</li> </ul>	<ul style="list-style-type: none"> <li>Existing trees will remain on the perimeter of the site, serving as landscape buffers to increase S2GF's visual compatibility with the surrounding area.</li> <li>A visual screen consisting of a mixed stand of trees, 20 to 30 feet high at maturity, will be planted in rows along the southern property lines. The northern property line will initially be planted with large native trees to create a 30-foot-wide buffer.</li> <li>If needed, the applicant will construct screening walls around ancillary elements. Wall treatments could include aesthetic material/texture patterns and vines.</li> <li>If needed, additional screening by planting low trees, shrubs, and vines at recommended intervals around the perimeter of the galvanized chain link fence will be provided.</li> <li>Project elements, except for the emission stacks, will be painted predominately earth tones. The emission stacks will be painted a light gray or similar color.</li> <li>None proposed.</li> </ul>



**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

<b>Potential Impact</b>	<b>Mitigation</b>
<ul style="list-style-type: none"> <li>Visual impacts are associated with the residences along the two 115 kV Whatcom County transmission lines. The greatest potential impacts to the residences would occur where transmission line structures would be in close proximity. Where site distances are greater, visual impacts of the transmission lines and structures would be lower. In locations where structures are hidden or blend well into the landscape, visual impacts would be the lowest.</li> </ul>	<ul style="list-style-type: none"> <li>None proposed.</li> </ul>
<b>Socioeconomics</b>	
<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>It is expected that during the peak of construction, a maximum of approximately 140 construction workers would require temporary housing in the general vicinity of the S2GF site.</li> <li>Total payroll costs for the S2GF, including fringe benefits and other labor overhead costs, are projected at \$30.6 million. It is anticipated that approximately \$11 million will be expended in Whatcom County during project construction.</li> <li>Local (Whatcom County) non-salary expenditures for materials, services, and equipment leasing associated with construction are projected to total about \$22 million.</li> <li>Based on the IMPLAN database, the project would generate 645 worker-years of direct employment at the site during the 1-1/2 years of construction. The stimulus to enterprises and government agencies throughout Whatcom County from project and worker spending would create approximately 2,430 worker-years of additional indirect and induced employment.</li> </ul>	<ul style="list-style-type: none"> <li>None required.</li> <li>None required.</li> <li>None required.</li> <li>None required.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<ul style="list-style-type: none"> <li>▪ The state use tax levied on out-of-state procurements, coupled with the taxable in-state purchases of goods and services (total taxable purchases would equal approximately \$280 million), would generate an estimated \$18 million for the State of Washington. \$3.4 million would be generated for Whatcom County and the cities where purchases are made.</li> <li>▪ Local park and recreation facility users are expected to experience minor impacts resulting from the use of RV spaces by construction workers.</li> <li>▪ Construction workers commuting into the local communities may create a minor and temporary increase in the demand placed on public service providers, utilities, and schools.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None required.</li> <li>▪ None required.</li> <li>▪ None required.</li> </ul>
<p><b>Operation</b></p> <ul style="list-style-type: none"> <li>▪ Emergencies resulting from facility operation (e.g., fires, worker injuries, etc.) could place increased demands on emergency response services.</li> <li>▪ There would be a potential positive impact on public service and utility finances due to S2GF operation. The operational plant's assessed value would be approximately \$385 million, and would generate several million dollars per year in property and sales tax revenues for municipal, county, school district, and other local jurisdictions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ During operation, on-site security personnel, a fire brigade, and an emergency medical response team will provide essential public services. Use of on-site services and emergency response plans and devices, coupled with the relatively small number of employees that will staff the facility, will minimize additional demands placed on local public services during normal operations.</li> <li>▪ The facility's emergency response plan will incorporate the existing mutual aid agreements with Cherry Point refinery staff, or develop a plan to establish agreements with Canadian authorities, who may be closer.</li> <li>▪ None required.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
<b>Traffic, Parking, and Transportation</b>	
<p><i>Construction</i></p> <ul style="list-style-type: none"> <li>▪ Trucks carrying fill for site preparation would travel between the S2GF site and gravel mining and processing facilities located to the south. The effect of 30 inbound and 30 outbound truck trips per hour on SR 9 would be a noticeable change during the site preparation phase.</li> <li>▪ There is the potential for trucks leaving the S2GF site to carry mud onto adjacent roads.</li> <li>▪ A peak of 400 construction workers may be onsite during the construction phase. The 300-car onsite parking lot may not accommodate the total number of worker vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The contractor should provide temporary traffic controls during periods of heavy truck traffic.</li> <li>▪ Construction documents will require the contractors to submit (for review and approval) a traffic management plan addressing all aspects of project construction. The specification will further require specific repair procedures and cleanup provisions to maintain the existing roads in their preconstruction condition. In the event that the construction traffic causes damage to the affected roads, the contractor will be required to repair those sections to meet state and local standards. The plan should include provisions to clean exiting trucks as well as monitor and clean adjacent roads as needed.</li> <li>▪ Carpooling of construction workers will be encouraged.</li> <li>▪ The applicant will provide additional nearby parking immediately if the 300-car lot is insufficient.</li> <li>▪ The contractor should monitor adjacent roads if required to prevent spillover parking.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

<b>Potential Impact</b>	<b>Mitigation</b>
<ul style="list-style-type: none"> <li>Temporary street closures may occur while transmission poles are installed and maintained.</li> </ul>	<ul style="list-style-type: none"> <li>Construction documents will require the contractors to submit (for review and approval) a traffic management plan addressing all aspects of project construction.</li> </ul>
<b>Communications</b>	
<p><i>Construction</i></p> <ul style="list-style-type: none"> <li>Excavations for the natural gas, water, or sewer pipelines could potentially damage underground utilities, including communications cables.</li> </ul>	<ul style="list-style-type: none"> <li>The contractor will be required to use the state “One-Call” system to locate and mark utilities prior to construction, and to coordinate with local utility providers.</li> </ul>
<b>Health and Safety</b>	
<p><i>Construction/Operation</i></p> <ul style="list-style-type: none"> <li>Potential explosion and fire could result from a failure of the natural gas supply pipeline, causing human and environmental damage.</li> </ul>	<ul style="list-style-type: none"> <li>Experienced pipeline engineers will design the natural gas pipeline to meet or exceed all regulatory and safety requirements.</li> <li>The pipe will be manufactured according to specifications that exceed the industry standard API-5L.</li> <li>The pipe will be coated with fusion-bonded epoxy or an equivalent watertight coating to minimize the possibility of corrosion.</li> <li>Construction will be governed by a comprehensive set of specifications, and will be monitored by an experienced construction management team to ensure compliance with those specifications. These specifications will be provided to EFSEC for review and approval prior to the start of construction.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
	<ul style="list-style-type: none"> <li>▪ Although federal regulations require natural gas pipelines to be buried a minimum of 3 feet, the applicant will construct the pipeline at a minimum depth of 4.5 feet to ensure that farming equipment will not come in contact with the pipe.</li> <li>▪ Welding inspectors will be onsite during construction to inspect each weld and verify that proper welding procedures have been used. The applicant will inspect all welds radiographically.</li> <li>▪ All pipe bends will be large-radius bends to minimize stress on the pipe.</li> <li>▪ Following construction, the applicant will conduct a line inspection with an internal inspection device commonly known as a “smart pig.” This will verify the integrity of the line, remove debris, remove liquids remaining from the pressure testing, and serve as a baseline for use in evaluating the pipeline’s condition with subsequent inspections.</li> <li>▪ Following installation, the applicant will test the pipeline hydrostatically to not less than 1.5 times the maximum allowable operating pressure prior to covering.</li> <li>▪ The cathodic protection system will be designed based on the results of a site-specific cathodic protection survey. Test stations will also be installed at several locations along the line to facilitate monitoring of the system.</li> <li>▪ Pressure control instrumentation will be used to keep the pipeline operating within specified pressure limits. Emergency pressure relief valves with vent stacks will be installed near the facility to relieve natural gas pressure buildup if a surge condition occurs. These relief valves will prevent the pressure in the line from rising above maximum allowable operating pressure.</li> </ul>

**Table S-2: Summary of Potential Impacts and Mitigation for S2GF Project**

Potential Impact	Mitigation
	<ul style="list-style-type: none"> <li>▪ The location of the pipeline will be marked with staked signs. There will also be a warning tape placed in the trench above the pipeline to warn anyone excavating in the vicinity of the pipeline's location.</li> <li>▪ Qualified inspectors will regularly inspect the physical condition of the right-of-way, watching for encroaching activities that might damage the pipeline and other causes for concern. Qualified inspectors will monitor the effectiveness of the cathodic protection system.</li> <li>▪ The applicant will conduct internal ("smart pig") inspections of the pipeline to verify weld and pipe wall thickness and integrity every five years.</li> </ul>

